

INTERESTED?

The *California Outdoor Lighting Baseline Assessment* provides data and insights that will be useful to:

- Energy and building code developers
- Facility owners and managers
- Lighting designers, manufacturers and researchers
- And many others

Key next steps include:

- *Facility owners/managers*
Select outdoor lighting equipment and control strategies to save money, reduce energy use, and improve lighting quality.
- *Code developers*
Implement code changes that effectively meet outdoor lighting needs while reducing energy use.
- *Lighting researchers*
Apply this study's methodologies and results in future studies.

This project was part of the *Integrated Energy Systems: Productivity and Building Science* program. To learn more, visit www.newbuildings.org/pier.



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CALIFORNIA OUTDOOR LIGHTING BASELINE ASSESSMENT



SHEDDING LIGHT ON
HOW WE ILLUMINATE
THE OUTDOORS



UNDERSTANDING OUTDOOR LIGHTING

Step outside at night in any California city or suburb. Does it seem like there are more outdoor light fixtures and brighter lamps than ever before? How much energy are we using to light up our nights? Are today's outdoor lighting practices effective—or do they waste money and energy or even create visibility problems?

Until now, there was little data about the amount of outdoor lighting energy used in California. There was even less information on the types of outdoor lighting practices in the state. The *California Outdoor Lighting Baseline Assessment* is the first major study to provide real data about commercial building outdoor lighting in the state. This report:

- Identifies statewide outdoor lighting design practices
- Estimates energy demand and consumption
- Provides a framework for outdoor lighting standards in California and future investigations of outdoor lighting



Lighting survey toolkit used to gather data for the baseline assessment

CALIFORNIA OUTDOOR LIGHTING BASELINE ASSESSMENT

THIS GROUNDBREAKING STUDY PROVIDES A VALUABLE SNAPSHOT OF COMMERCIAL AND INDUSTRIAL OUTDOOR LIGHTING PRACTICES IN CALIFORNIA. FOR EXAMPLE:

- Incandescent lamps represent 31% of all lamps installed
- 58% of all outdoor lamps at apartment and condominium buildings are compact fluorescent lamps
- 48% of parking lots have high pressure sodium lamps



Wallpack light fixture at night

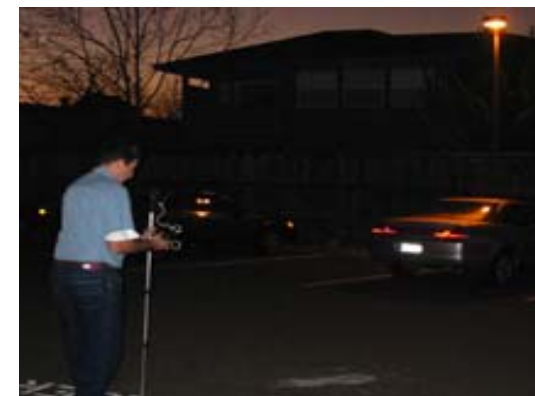
THIS RESEARCH WILL LIKELY INFLUENCE OUTDOOR LIGHTING DESIGNS, CODES AND STANDARDS IN CALIFORNIA AND BEYOND.

KEY FINDINGS INCLUDE STATEWIDE ENERGY USE BY FUNCTIONAL USE AREA:

Area	Energy Use (GWh)	% of Total Energy Use
Parking	967	32%
Walkway	686	22%
Signage	623	20%
Security	208	7%
Storage	160	5%
Outdoor Retail	140	5%

MAJOR STUDY YIELDS VALUABLE DATA

The *California Outdoor Lighting Baseline Assessment* analyzes data collected from visits to over 300 sites throughout California, encompassing 20 different categories of businesses as well as multi-family residential buildings.



Field surveyor taking light readings

The study provides extensive data and valuable insights, including:

- Lighting power density (LPD) levels by building type, functional use area (parking lots, walkways, façades, etc.), and lighting zone
- Types of lamps and fixtures at each site
- Illuminance levels, glare and light trespass readings
- Use of lighting controls

The study also determined the state's commercial outdoor lighting energy use:

- Annual energy consumption: 3,067 GWh (1.34% of California's total energy use)
- Peak demand: 809 MW, occurring from 7 PM to 8 PM in the winter